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File: USPT

Jul 29, 2003

DOCUMENT-IDENTIFIER: US 6601044 B1

TITLE: Method and apparatus for enabling individual or smaller investors or others to create and manage a portfolio of securities or other assets or liabilities on a cost effective basis

Brief Summary Text (19):

Certain funds other than open-end mutual funds, such as closed-end funds or some trusts, as well as derivative securities, do trade during the day and therefore can reflect intra-day price movements. Each of these other vehicles, however, has negative characteristics that have made them unpopular with investors, including discounts to fair market value of the underlying securities, less transparency than open-end mutual funds or relatively unchangeable, static portfolios, and they are not generally viewed as substitutes for an open-end mutual fund. In addition, in these vehicles as well, the investor buys or sells only an interest in the fund, not the securities owned by the fund.

Brief Summary Text (20):

7. Inability to Monitor and Control Risk Levels and "Styles" of Investing. An investor in a fund can receive historical information as to risk and returns for the fund. Mutual funds that are actively managed--as opposed to passively managed indexed funds or static portfolio trusts--are managed by individuals, and frequently by teams of individuals, making buy and sell decisions. When some of those individuals depart the fund, the "style" of investing of the fund may change. Even if those individual managers never depart the fund, the market may present them with fewer or greater opportunities to buy or sell securities under a particular "style" than they had before. Or their views as to the market may change and with it their investment mix. Some investors in these funds accept these changes in style and direction and view that as part of what they are paying for with the management fee. Others, however, attempt to select funds based on the funds supposed risk, sector of interest and other factors (including previous returns or returns relative to an index). It is not possible to control those factors in these funds in advance, however, unless the fund commits to a mechanical style of investing with extremely limited discretion--which is typical for an index fund but very rare for an actively managed fund.

Brief Summary Text (22):

9. Inability to Manage Multiple Investments as a Whole. When an investor is invested in multiple funds, it is very difficult for the investor to understand the overall portfolio characteristics of their investment. In other words, many investors may have one or a few investments in funds in 401(k) or other retirement accounts, and then a few other fund investments or individual stock investments outside of their retirement accounts. These investors generally do not manage their overall portfolio of multiple funds and individual stock holdings as a whole managed portfolio, because it is very difficult to discern the overall risk and return of the integrated portfolio of multiple funds and individual stocks. Of course, it is that integrated portfolio that will, ultimately, provide returns for the investor. Some investors pay to have multiple funds managed by investing in "funds of funds" that attempt to do that for them. Even here, the investor's portfolio does not include, for purposes of determining whether the investor's overall portfolio is being managed well, those funds that are not part of the "fund

of funds" complex, or individual stocks held by the investor.

Brief Summary Text (24):

1. Inability to Create a Diversified Portfolio on a Cost Effective Basis. Under portfolio theory, an investor should seek to create a diversified portfolio when investing. Diversification provides an investor with a similar return with lower risk, or a higher return with the same level of risk, as a non-diversified portfolio. Simply put, portfolio theory dictates that there is no advantage to an ordinary investor in holding a non-diversified portfolio of publicly-traded securities as opposed to a diversified portfolio. Nevertheless, few smaller investors are able to create a diversified portfolio. The obstacles to creating such a portfolio for the smaller investor have been the inability of the ordinary investor to be able to craft such a portfolio on his own, combined with the costs of engaging in the trading necessary to create and maintain such a portfolio, and the inability to consummate trades in small quantities needed to create such a portfolio. Consequently, most investors who have understood the benefits, or at least understood that there is a benefit, from diversification have turned to mutual funds. And that desire for diversification has been a primary factor in the explosive growth of such funds, notwithstanding all of the disadvantages of investing in mutual funds as described above. Simply put, the concept underlying brokerage has been the selection of individual stocks, not the creation of an interacting portfolio of securities (something which has been left to the funds).

Brief Summary Text (25):

Costs: The costs for an individual or smaller investor, or an investor seeking to invest a smaller amount, in attempting to create and maintain a diversified portfolio stem, in part, from the cost of brokerage. An investor buys or sells individual securities by employing a broker. The broker purchases the selected securities for the investor directly or from a dealer or on an exchange. The costs to a retail investor of purchasing or selling a security are reflected in charges that fall generally into two categories. (For larger institutional orders, these two costs generally are far lower on a percentage basis relative to the investment as compared to a smaller order, but there are significant, additional other costs to these larger orders stemming, for example, from the market impact of the order itself--in other words the ability of the existence of a very large buy or sell order to affect the price at which the order will be effected by moving the applicable bid-ask quotes. Other systems (the OptiMark.TM. trading system, ITG-Posit, noted below) have attempted to address this problem for these large institutional investors.)

Brief Summary Text (27):

Through technology, increased efficiencies and productivity, competition, etc., these costs have been decreasing over time. Nevertheless, all in all costs (including the mark-up or spread) are still on the order (for the deepest discount broker and for the smallest round-lot of 100 shares) of at least tens of dollars per security traded. This is true even where the explicit commissions have been reduced, in some cases to zero, because the broker-dealer is extracting a high "spread" from the investor that the investor usually is not aware of. Moreover, the current view is that the costs have reached a price floor, and without new systems for engaging in trading, such as the present invention, the costs will not be reduced much further.

Brief Summary Text (31):

Capability. In addition to prohibitive costs, ordinary investors possess neither the skills nor the tools necessary to create and maintain a diversified portfolio with desired risk-return characteristics. To create such a portfolio, an investor needs to understand risk as it is defined from the perspective of portfolio theory, and have the data and the mechanism for analyzing the data to employ the theory. That data then needs to be correctly employed in connection with a trading system to allow for the cost effective creation and maintenance of the portfolio. There is

no brokerage (or other system) that deploys, uses and otherwise acts upon the necessary diversification information, combined with a trading system, so as to be accessible by an ordinary investor. There are, and have been a variety of systems (for example, Schwab One Source (www.schwab.com), Financial Engines (www.financialengines.com) and a new Microsoft site (<http://beta.investor.com>)) that provide advice to investors as to the creation of a portfolio of mutual funds based on, among other things, risk, style, performance, and ratings. These systems, however, are not designed to enable investors to purchase a portfolio of specific securities (as opposed to assisting in the purchase of a few, specific mutual funds, with all the attendant disadvantages of holding mutual funds) in a cost effective manner, or hold fractional shares in securities (as opposed to interests in funds), or obtain any of the other advantages stemming from the ability to invest directly in securities as opposed to funds, all as mentioned above and discussed further below.

Brief Summary Text (33):

Purchasing or selling a security through an ordinary brokerage requires transactions to be effected in minimum units of whole numbers. In other words, an investor can purchase no less than 1 share of IBM or sell no less than 1 share of General Motors, and purchases or sales must be whole numbers such as 27 shares, as opposed to 27.437 shares. In addition, costs are frequently prohibitive for small transactions in a security (such as 1 or 2 shares) or even for transactions in less than a round lot (100 shares). An investor buying a round lot in the ordinary security trading between \$20 and \$40 would be buying at least \$2,000 to \$4,000 worth of the security. Buying 50 round lots to create a diversified portfolio requires a greater investment (\$100,000 to \$200,000) than most investors are able to make. As a specific example, then, an investor wishing to invest \$150 per week could, through an ordinary brokerage, at best buy 7 shares of a \$20 stock, or 3 shares of a \$40 stock, invest the balance in cash, and wait for the next week to buy a different stock or more of the same stock. But at a brokerage cost of, say, just \$5 per security traded, the brokerage costs would range from \$15 to \$35 (a prohibitive 10% to over 23% of the amount to be invested). This is not a practical alternative. The only alternative that has been reasonable to date for an investor in this position has been to invest in a fund.

Brief Summary Text (34):

3. Inability to Select Individual Securities Reflecting Preferences to be Included Within a Diversified Portfolio. Using a broker, an individual or smaller investor, or a person investing a smaller amount, obviously can select individual securities for purchase and sale. Ordinary brokerage, however, does not provide a mechanism for readjusting an entire portfolio of holdings as a unified portfolio of investments. Consequently, most investors are likely to be overweighted in a particular security or sector because of the costs of re-configuring their portfolio and an inability to determine the overall profile of the portfolio. Even if the overall risk and other profile characteristics are determined, the investor would usually not be in a position to act to make the portfolio diversified because of the cost issue described above.

Brief Summary Text (41):

7. Failure to Limit Portfolio Characteristics. Currently, brokerage is permitted in some self-directed retirement accounts established by employers (such as 401(k)s), but not permitted in many. The reason, in part, is that employers are concerned that employees, especially somewhat less sophisticated employees, will not fully appreciate the risks of investing and may invest in too risky a security, or not a sufficiently diversified portfolio, and therefore potentially lose much or all of their expected retirement. Consequently, employers limit the choices that employees may select by offering them a limited number of investment choices, which because employers want to provide diversification within each investment vehicle so offered has generally meant, almost exclusively, various types of funds. Brokerage has not been offered because there was no way to ensure that an employee would invest in a

diversified portfolio with specified maximum risk levels (hence the practice of forcing employees to invest in selected funds).

Brief Summary Text (43):

Electronic trading systems are known. The OptiMark.TM. trading system is a system that allows large institutional investors and others who are concerned about potentially moving the market by placing large orders to place such orders with minimized market impact. It is premised on the concept of a trader having a utility preference function for a particular transaction. As an example, the OptiMark.TM. system works by having a trader specify how much above the current equilibrium price he is willing to pay to purchase a block of securities. The system then attempts to match that trader's transaction preferences with another trader's preferences in order to complete a trade. The OptiMark.TM. trading system therefore engages in price discovery.

Brief Summary Text (44):

ITG-Posit is an electronic equity-matching system that lets investors find the other side of a trade during the market day. Posit utilizes mid-point pricing. Buy and sell orders, including individual stocks and portfolios, are entered into the system; five times daily, Posit processes and compares the orders. Posit trades are then priced at the midpoint of the bid/offer spread (the difference between the best seller's asking price and the best buyer's bid) in the stock's primary market when the match is run. Those orders which match are executed. Investors can keep unmatched orders in the system for future matches or can electronically route the order to any one of the primary or regional exchanges, to OTC market makers, or complete the order on an agency basis. Posit is used by major institutions and broker/dealers. Posit, like the OptiMark.TM. trading system, is in essence a matching system but Posit matches trades at the mid-point (as determined by a third party system) without independent price discovery. It is premised on traders wishing to trade with each other and provides such traders a potentially better execution (because of the mid-point cross) with lower market impact (because of the anonymity of the trades and the increased available liquidity based on the concentration of trades within certain time frames).

Brief Summary Text (45):

The New York Stock Exchange and the NASDAQ market also both aggregate order flow at the open and the close of the exchanges to match order flow and, of course, concentrate order flow during the day by limiting the number of persons who can trade a security (one specialist per stock on the New York Stock Exchange so that order flow at the Exchange in a particular stock moves through that one specialist, and to "market makers" on the NASDAQ, so that all order flow on the NASDAQ is focussed on the market-makers).

Brief Summary Text (46):

Schwab, Financial Engines (and perhaps Microsoft) provide services that assist investors (such as a participant in a 401(k) plan) in selecting a mutual fund or creating a portfolio of mutual funds by selecting from among a group of mutual funds available to the participant based on risk/return and other factor analysis. Once the analysis is complete, the participant then selects mutual funds for his portfolio according to what is permitted by his participation rules (if it is a 401(k) plan) or through brokers or others offering the funds. Although for Financial Engines and Microsoft there currently is no direct mechanism for actually executing the desired purchases of fund interests, Schwab does make available the ability to purchase interests in the funds directly through Schwab. There is no mechanism, however, for enabling the participant to select, craft, modify and execute a portfolio comprising individual equities: Such an investment in equities is a completely different form of investment from an investment in funds where, before the present invention, it has not been possible for a smaller investor to acquire or trade individual equities in small or fractional amounts on a cost-effective basis or to manage individual equities as an integrated portfolio as opposed to a

series of individual investments.

Brief Summary Text (48):

Programs and databases exist that provide raw information regarding volatility and other indicia relative to individual stocks and mechanisms for investors to screen stocks to obtain a list of those stocks that meet certain profiles or parameters.

Brief Summary Text (49):

Systems exist that allow a user to screen the portfolios of certain other parties, primarily certain investment managers that file documents with the Securities and Exchange Commission. These systems do not create mechanisms for investors of a system to screen characteristics of other investors of the system (such as patent lawyers or individuals making more than \$75,000) to obtain a composite portfolio or a portfolio comprising composite characteristics of these other investors. Systems exist that are designed to create derivatives and futures that permit investors to obtain the market risk economic benefits of a portfolio investment similar to that of the current invention. These systems, however, are not currently permitted in the United States for regulatory reasons, introduce credit risk related to the issuer of the derivative/future, provide for different and adverse tax consequences compared to those offered by using the current invention, do not provide for the exercise of shareholder rights, do not permit the selection of particular stocks reflecting non-economic preferences (such as "no-tobacco"), and generally do not substitute at all for the current invention.

Brief Summary Text (59):

In addition, the system of the present invention optionally includes an investor program executing on an investor's personal computer, which program prompts the investor for investor identification information and investor preferences, transmits investor identification and investor preferences to the processor, and enables the investor to interact with the processor to select multiple assets/liabilities to create an investor portfolio commensurate with the percentage allocation of investment assets. The investor program can include a graphical investor interface displaying a risk and a differential return of the entire investor portfolio relative to standard industry measurements to the investor and on absolute scales. Also, the investor program enables the investor to adjust the percentage allocation of investment assets and the investor portfolio. Moreover, the investor program communicates to the processor as trading data via one of the communication links investor identification information along with any trades of assets/liabilities to be executed to create or modify an investor's portfolio to ensure an investor's actual portfolio matches an investor's desired portfolio.

Brief Summary Text (65):

According to one aspect of the present invention, the processor receives actual trading pricing information regarding the single buy order and the single sell order for each of the assets/liabilities from the third party trading system. The processor then transmits the actual trading pricing information regarding each asset/liability traded by a particular investor to the particular investor. In response to the actual trading pricing information received by a particular investor, the investor program modifies the display of the risk and differential return of the entire investor portfolio in accordance with the actual trading pricing information regarding each asset/liability traded by the investor. Based on this information, the investor program recommends modifications to the investor portfolio to the investor via the graphical investor interface to make the investor portfolio match the percentage allocation previously determined if the investor portfolio no longer matches the percentage allocation as a result of the actual trading pricing information received from the processor.

Brief Summary Text (67):

According to another aspect of the present invention, a personal computer based program for executing on an investor's personal computer, for enabling an investor

to create, manage and trade a portfolio of assets/liabilities and for interfacing with a system for managing a plurality of such investors via a first communication link over which the investor transmits to the system trading data regarding trades of at least one asset/liability that the investor desires to make, includes the following elements. A graphical investor interface prompts the investor for investor identification information, and investor preference data. An asset allocation modeling process creates a percentage allocation of assets for the investor based on the investor preference data, wherein the graphical investor interface displays via the computer display multiple assets/liabilities among which the investor can select to create an investor portfolio commensurate with the percentage allocation of assets. A risk and differential return calculation process calculates a risk and a differential return of the entire investor portfolio relative to standard industry measurements or absolute values, and provides the relative risk and differential return to the graphical investor interface, which displays the relative risk and differential return to the investor. A portfolio editor process enables the investor to adjust the investor portfolio. A communication process communicates the investor identification information along with any trades of assets/liabilities to be executed to create or modify an investor's portfolio to ensure an investor's actual portfolio matches an investor's desired portfolio to the system as said trading data via the first communication link. In this program, the graphical investor interface can display the relative risk and differential return as a color code, a numerical indicator, an arrow on a dial, or an arrow on a range of numerical values or an arrow on a horizontal or vertical scale.

Brief Summary Text (68):

According to another aspect of the present invention, the system permits the investor to adjust the color code, the numerical indicator, the arrow on a dial, or the arrow on a range of numerical values or the arrow on a horizontal or vertical scale, by moving a slide or other indicator on the graphical investor interface, and by so doing change the requested risk and return levels for the investor's preferred portfolio. Consequently, the investor can adjust the characteristics of the portfolio directly by changing the position of the indicator, and the system will then store the changed requested characteristics and select securities for inclusion or exclusion in or from the portfolio, or the weighting of such securities in the portfolio, based on matching the portfolio characteristics so selected by the investor with the portfolio characteristics of the investor's portfolio of securities. In this instance, the system will recommend or suggest to the investor the securities that should be included in the investor's portfolio that satisfy the investor's risk and return selections, combined with any other selections or preferences that the investor may have.

Brief Summary Text (69):

According to another aspect of the present invention, the system includes, in its differential risk and return calculations, securities and other investments, including funds, held by the investor that were not acquired through the system but that the investor notes or describes to the system, in determining the overall portfolio characteristics and in making recommendations or suggestions to the investor as to what other securities should be included in the investor's portfolio.

Brief Summary Text (70):

According to another aspect of the present invention, the system permits a sponsoring organization, such as an employer, to specify that all the investors in the system of that sponsoring organization (such as employees in the employer's 401 (k) plan) may invest using the system, but that their portfolio must all times meet certain specifications. The specifications could include a minimum number of stocks (such as 30), a maximum concentration in any particular stock (such as 5%) and a maximum risk level (such as no more than 10% more risky than the market as defined by the S&P 500 risk level). Similarly, the head of a household could establish

investing accounts for members of the household with similar constraints or whatever other limitations along similar lines were desired.

Brief Summary Text (74):

According to yet another aspect of the present invention, an apparatus for enabling a plurality of investors to make periodic investments in a portfolio of securities includes a processor and a storage device. The processor receives data from each of the investors regarding amounts of money to be invested in each investor's portfolio, and accesses an electronic payment system upon receiving instructions from an investor to purchase securities to obtain payment for the required purchases. The storage unit stores each investor's portfolio. This apparatus can optionally include a third party trading system interface device that aggregates all investors' trades and sends the aggregated trades as a single trade in each security to a third party trading system, which orders can optionally be netted before sending them to the third party trading system.

Brief Summary Text (77):

Once an affinity group is identified, the system can gather statistics for the investor noting, again hypothetically, that as a group, patent attorneys invest in high technology stocks. The system could then list the ten most frequently traded high technology stocks in which patent attorneys are interested. Similarly, the system can gather statistics for the investor on what level of risk and return generally characterizes the current portfolio investing by economists, and then create a portfolio that matches those portfolio characteristics.

Brief Summary Text (78):

If an investor has a particular interest in a more specific affinity group, the investor might query the system of the present invention to provide all of the securities in which patent attorneys who specialize in mechanical engineering are investing. Again general groupings of securities could be presented or the top ten securities being traded by mechanical patent attorneys can be listed, or the portfolio characteristics can be selected and matched.

Brief Summary Text (80):

Once these affinity group investment characteristics and strategies are created, an investor can have the option of investing in the same portfolio (based on risk/return characteristics, identity of security characteristics, such as high tech, or individual securities or otherwise) as is listed for a particular affinity group. Thus affinity group investing can be supported by the system of the present invention. This again provides numerous options for unsophisticated investors, or those investors who simply wish to take advantage of the thought processes of a particular group of investors whose characteristics are selected by the investor.

Brief Summary Text (81):

An additional functionality of the present invention is to assess the relative performance of the portfolio of each affinity group. Since the securities either as groups (e.g., utilities) or individual stocks (e.g., Intel) can be analyzed over various periods of time based upon information stored in the securities database of the present invention such information can be provided to the investor. In this manner an investor might determine that Hollywood actors are better investors than patent attorneys.

Brief Summary Text (82):

An additional benefit of the present invention is that it allows for an investor to modify the investor's portfolio without selling all the securities held by the investor, but rather by simply modifying the portfolio. Consequently, as compared to an investment in funds where an investor may wish to switch from a Fidelity fund to a somewhat more risky Vanguard fund, where the investor currently has to sell the Fidelity fund (with possible tax consequences) to buy the Vanguard fund, under the present invention, the investor merely has to increase the risk level.

According to one aspect of the present invention then, an investor that wishes to match the risk level (within possible limits) of a specified fund merely modifies the risk level of the given portfolio to do so. This can be accomplished by leveraging (margining) the current securities positions without having to sell any of the securities.

Brief Summary Text (83):

According to yet another aspect of the present invention, in order to permit the investor to understand and manage its portfolio on a whole, integrated basis, the investor would be permitted, for purpose of analyses, to aggregate the holdings in multiple accounts (such as an IRA, a 401(k), and a non-tax-advantaged account that the investor uses for investing). In this manner, the investor can view all its holdings in securities and other investments as a single integrated investment portfolio for purposes of determining risk levels, diversification, concentration, sector exposure, or otherwise. Consequently, the investor obtains the benefits of viewing its portfolio as an integrated whole, as opposed to a series of unconnected investments, even though for legal purposes the accounts are maintained as legally disparate and separate accounts. According to yet another aspect of the present invention, the same concepts of aggregating across legally disparate accounts could be employed in connection with other securities, primarily interests in funds, and even investments other than individual securities or funds, such as real estate, gold or other investments, that an investor might hold.

Brief Summary Text (84):

In addition, individuals who wish to invest in securities, or who should invest in securities in order to achieve their financial goals, frequently are not sufficiently sophisticated enough to be familiar with the wide variety of technical terms and their meanings associated with such investing. For example the term "volatility" may have little meaning to a novice investor. Further, such an investor might have specific desires for stocks which might be expressed in terms of a desire to invest in "big companies" or "high tech" stocks yet the investor may not have a firm foundation for what these terms actually mean. In order to assist novice investors in taking advantage of the wide variety of capabilities of the present invention, a natural language interface is provided wherein an investor can pose investment preferences in terms with which the investor is comfortable. The natural language interface parses the input language of the investor into securities characteristics that would meet the investor's needs. For example, if the investor desires to invest only in "big companies," the natural language interface translates that desire into a query against annual revenues of companies in the securities database. Further, the term, "big companies" could then be determined to mean companies whose annual gross revenue is in excess of \$1 billion, for example. This in turn implicates only certain stocks in the generalized portfolio of securities in the system's database. Therefore, as a result of the investor's desire to invest in "big companies" a series of stocks would be selected and displayed to the investor which fits into the characteristics desired by the investor.

Brief Summary Text (86):

For those investors who generally want to invest but are totally unfamiliar with the terminology that characterizes stocks, a series of screens may be presented to the investor which gives the investor options in a natural language form which the investor can then select as input to the system for the selection of securities. For example, a screen may provide the investor with choices which state "I wish to invest in large companies." In this example, checking of this particular characteristic on a screen results in a series of securities characteristics being triggered in a query against the generalized database of securities. In this case a natural language processor is not necessarily required since the "canned" queries can already have the rules for securities selection associated with the choice on the screen.

Detailed Description Text (9):

The computer-based system of the present invention permits, without incurring any additional costs, investors to purchase or sell small--and even fractional--units of shares. This is because, according to one embodiment of the computer-based system of the present invention, the system aggregates orders provided by its investors, executes the aggregated transactions and then allocates the acquired (or cash for sold) shares back to the accounts of the investors. (Since transactions outside of the system must still be made in full share amounts, it is possible that a fractional share amount could remain after the allocations. For example, $71\frac{1}{2}$ shares of a stock in total could be allocated to 15 different accounts--with $1\frac{1}{2}$ share allocated to each. To effect this transaction, if the shares are acquired from outside the system, the broker operating the system would acquire 8 shares. The remaining $1\frac{1}{2}$ share would be owned by the broker or a third party worker with the broker operating the system and held for allocation as needed in subsequent rounds of trading.) Consequently, an investor could have \$150 per week invested in 50 stocks, receiving an allocation to his account of fractional shares. Each subsequent week, the investor would have added to his account additional fractional interests in each of these stocks. Over the course of a year with, for example, about \$7,800 invested, the investor would have full and fractional shares in his account (if the average stock price were \$30, the investor would have on average a little over 5 shares--5.2 shares to be precise--in each of 50 stocks). The system of the present invention permits that full investment each week (or any desired period) in a diversified portfolio, the transactions in small share interests, and the transactions in fractional interests (none of which is possible on a cost-effective basis with ordinary brokerage). According to another embodiment of the computer-based system of the present invention, the system could be maintained by a broker so that the orders of the investors are executed by the broker or a third party as principal, with the broker maintaining a position in the securities, and thereby, in essence, aggregating the orders of the investors as contra-side transactions of the broker. Periodically, the broker could then execute an off-setting trade in the marketplace if the broker did not wish to carry the position.

3. Enables an investor to select individual securities reflecting preferences to be included within a diversified portfolio, and provides the information and tools necessary to create this type of portfolio for a low cost. The tools can also include "pre-packaged" or "celebrity" or other selected portfolios that can be further modified by the investor, or portfolios reflecting the portfolios or portfolio characteristics of specified affinity groups or other selected investors.

4. Enables reduced transactions costs by accepting customer orders entered at any time and aggregating them for trading. The computer-based system of the present invention holds the orders (except for those for which immediate execution is desired by the customer) until particular times, such as for example, at least three times per day (the "open" for any orders received since the last close of business, "mid-day" for all orders received during the morning, and the "close" for all orders received during the afternoon). The number of times orders could be traded is in general not limited, and depends to some extent on the number of investors, and the degree of risk or principal positioning that the broker wishes to accept. The computer-based system of the present invention takes all the orders that have been entered with it and, at the specified time, aggregates those orders for the purpose of reducing the number of transactions that would have to be executed, thereby reducing transaction costs and providing benefits to investors.

5. Enables superior trade execution of orders through netting. Furthermore, the computer-based system of the present invention includes the capability of netting orders against each other. The remaining orders that cannot be matched are executed internally (to the extent the system is making a market in the securities being traded) or forwarded for execution to a third party execution system (such as an exchange or a market maker).

6. Monitors portfolio based tax effects. In contrast to the prior art, the underlying concept of the computer-based system of the present invention relates to the creation of a portfolio. In that context, the monitoring of the portfolio for tax effects is an adjunct to the transaction history and portfolio monitoring is part of the system. Consequently, the computer-

based system of the present invention can track the basis and acquisition date in each of the securities in the portfolio and use that basis to determine the tax consequences for the individual securities and the portfolio as a whole at any point in time. 7. Assists in the exercise of shareholder rights. Because the computer-based system of the present invention is designed to assist with regard to portfolios, including the exercise of shareholder rights regarding the portfolio securities, the computer-based system of the present invention offers assistance to investors in the form of aggregating not only their order execution, but also their voting or other rights. Consequently, an investor can obtain information in connection with his portfolio as to how securities could be voted by a service that analyzes the securities in the portfolio. The investor is permitted to direct that the voting be delegated to such service (or other services if multiple services are made available). 8. Permits the establishment of portfolio parameters. Because the computer-based system of the present invention is designed to assist in the creation of portfolios comprised of individual securities as opposed to the acquisition of individual securities as such, the portfolios can have limits imposed on them to facilitate "informed" or "reasonable" investing as determined by a plan sponsor or other party. Such parameters can be such that the portfolio must be diversified and not too risky, for example (in other words, it must have a set minimum number of stocks, such as 30, satisfying certain criteria, with no one stock accounting for more than 5% of the portfolio's value, and the overall risk in the portfolio not being in excess of a specified amount, such as 110%, of the S&P 500 risk level).

Detailed Description Text (11):

A block diagram of the process flow according to an exemplary embodiment of the computer-based system of the present invention is depicted in FIG. 1. The system 10 includes an asset allocation model 1, a portfolio selection editor 2, a web server 3 with storage 4, a database of tradeable assets or liabilities 6, a third party trading system 5 coupled to a clearinghouse 8, and a third party payment system 7. Information is provided by the investor to the computer-based system 10 through a graphical investor interface, which is shown in FIG. 1 in two parts as the asset allocation model 1 and the portfolio selection editor 2.

Detailed Description Text (12):

In the asset allocation model 1; an investor is first queried for answers to a series of questions that determine investor data (e.g., name, address, payment information, etc.), the investor's risk tolerance and financial goals and objectives, the investor's current assets and liabilities, the investor's current and expected income and current and expected expenditures and time frames (e.g., college education for children within 10-15 years, care of a parent within 5-10 years), the investor's preferred risk-return characteristics, the investor's preferences for various types of securities and preferred portfolio mix, and various other items. There are a variety of different outputs for the asset allocation model. One formulation is an amount that the investor should invest in long-term investments, medium-term investments, and short-term investments. The asset allocation model determines a percentage allocation in each of the general investment types according to a set of known tables. There are many existing asset allocation models, any of which can be employed in the present invention, such as that provided by Quicken.TM., Mentun Investment.TM. from The Mentum Corporation and perhaps Financial Engines (www.financialengines.com).

Detailed Description Text (15):

Once this percentage allocation is generally determined, the system enables the investor, as described below, to select a portfolio of tradeable assets or liabilities. This selection involves providing among other things an indication of the historical levels of risk and returns of the tradeable assets or liabilities to the investor as a portfolio of investments.

Detailed Description Text (16):

Once the investor selects his desired portfolio based on his various preferences as to specific assets or liabilities to be included in the portfolio, that portfolio may include different historical and expected levels of return than necessary to achieve the investor's stated financial goals. Consequently, the present invention provides an indication to the investor that these selections now require a modification of either the investor's specific asset/liability preferences or the percentage allocation to reach his investment objectives. The system does this by comparing the historical and expected rates of returns of the investor's portfolio to the rates of return assumed in the asset allocation models using known probabilistic methods including value at risk and sensitivity analysis, and when determining a difference exists, suggesting an adjustment in the percentage allocation to correct for the difference so that the desired financial goals can be achieved within the constraints set by the investor. To the extent these goals cannot be achieved, the present invention informs the investor that the risk return levels are not sufficient to reach the established goals. Moreover, the system provides further information to the investor as to what returns and levels of investment would be necessary to satisfy various financial goals modified to take into account the investor's risk preferences as provided to the system.

Detailed Description Text (18):

One unique feature of the present invention is shown by the distinction to the normal use of an asset allocation model, even one utilizing probabilistic returns such as Financial Engines. Under the present invention, the amount to be allocated to various asset classes is informed and is dynamically adjusted by the investor's preferences--not just the investor's demographic and asset/liability/income/expenditure information. By way of example, take two investor's who are identical in every respect regarding their assets and income and expected income from their jobs, their liabilities and expected expenditures, and financial goals for retirement, etc., except for their risk tolerance and preferences. One investor is very risk adverse, the other very willing to take risks. The usual asset allocation models would prescribe identical allocations to each. Adding probabilistic determinations as to the performance of various asset classes or various assets, such as mutual funds, simply allows a finer tuning and more accurate use of the asset allocation model. In other words, it simply ensures that when the determination is made to invest in a fund that returns an equity level investment, that the fund so invested in actually is expected to provide that return. It would still generate identical results for the general asset allocation or specific asset allocation, because it uses the information as to the investor's goals--and the asset's probabilistic returns--to arrive at a model of what asset is needed to satisfy the investor's goals. It does not use the investor's own risk tolerance in a dynamic manner to adjust the asset allocation model. But if, for example, some significant allocation in equities is necessary to reach the specified financial goals, and the investor who is very risk adverse is unwilling or reluctant to invest in equities that have ordinary market risk, it will be important to adjust the allocation and the actual equity portfolio in which the investments will be made. In other words, while the non-risk adverse investor may have, as an example, one-sixth of his investable assets in money market or short-term instruments, one-third in high risk equities, and one-half in intermediate risk instruments, it may be necessary for the risk-adverse investor to, contrary to expectations, have a portfolio that has more equities--but ones with lower risk--to satisfy both his financial goals and his perception of risk. Thus, the system of the present invention provides the asset allocation model with additional risk preference information that can be acted upon precisely through specific security portfolio allocation, as opposed to the typical asset allocation model that simply provides for an allocation to "equities" or to "funds" and then finds the equities or funds that satisfy the average as determined by the model, without being able to distinguish between--or create and act on--specific portfolios of equities that will be optimal for the investor taking into account, on a dynamic basis, the actual risk preferences, as opposed to only the financial goals and related factors, of the investor.

Detailed Description Text (19):

Notwithstanding this potential benefit, an investor could completely skip that portion of the interface involved in the asset allocation determination, and move directly to creating a portfolio, such as by stating that the investor wishes to invest in equities and would like to create a portfolio based on stated preferences. In this case, the investor enters those preferences just as an investor starting with the asset allocation determination would have entered these preferences, but without seeking the allocation, or the investor can select from a number of other portfolio creating starting points, such as pre-packaged portfolios, celebrity portfolios, affinity group portfolios, or portfolios suggested or recommended by the system based on the investor's risk and return preferences as generally stated by the investor. The portfolio screens enable selection of securities based on type of business or industry, stock volatility, capitalization, inclusion in various indices, book-to-earnings ratio or other financial measures, corporate governance or other matters, etc. The other portfolio creation starting points would consist of portfolios such as various indices (or subsets of various indices that generally reflect the risk--return characteristics of the indices), various strategies, such as the ten stocks in the Dow Jones Industrial Index that underperformed during the last calendar year, or other strategies embodied in various unit investment trusts, celebrity portfolios reflecting the portfolios of famous people or analysts or others, or portfolios encompassing recommendations from investing magazines or newsletters or other sources, or portfolios reflecting screened risk--return characteristics from various affinity groups that can be created by the investor, such as the portfolio characteristics of managers with more than \$200,000 income, securities lawyers living in Washington, D.C., engineers in Silicon Valley, commercial bank officers or other groups (all aggregated and with permission to protect privacy). An exemplary screen for inputting criteria for selecting the securities in the portfolio is depicted in FIGS. 4(A) and 4(B).

Detailed Description Text (20):

FIG. 5 depicts an exemplary output of the selection, in which each of the forty securities are equally weighted in the portfolio in terms of dollars invested in each security, which such exemplary portfolio could have been obtained through the investor's screening of stocks as part of the screening selection criteria based on book value, etc. pre-packaged portfolios, etc. affinity portfolios, etc. all as modified by the investor. Other variations are possible, and they can depend upon the price of the underlying security, and the total numbers of securities available, and the combined risk factor desired for the entire portfolio.

Detailed Description Text (21):

To accomplish this selection, the portfolio editor 2 accesses the web server 3, which in turn accesses the database 6 of equities, bonds, etc. This database is constantly updated with pricing, capitalization, price to earnings ratio, etc. from various stock reporting services known in the art. Each relevant factor of a security is associated with that security. When the investor establishes criteria for his portfolio, each of the relevant factors for each security in the database is compared to the criteria, and if they match the security is either included or excluded from the portfolio depending on the particular criterion.

Detailed Description Text (23):

In addition, the system specifies the level of risk for the portfolio and suggests changes to satisfy the investor's preferences. As an example, if there were insufficient companies in the above list, the system would suggest either relaxing the capitalization standard, or including more industries, such as communications, which could be viewed as similar to the non-manufacturing industries selected by the investor.

Detailed Description Text (24):

In conjunction with certain of these screens, the investor is provided with a response that shows the investor, graphically and/or with text and/or number representations, the results of the investor's selections. An exemplary portfolio is depicted in FIG. 5. The results include a comparison of the historical inherent risk in the selected portfolio relative to known standards, such as the S&P 500, and the riskiness from the perspective of lost principal, etc. of the portfolio for specified periods or through specified formulas.

Detailed Description Text (28):

Additional funds can be added to purchase additional stocks, or amounts of existing stocks, in the portfolio, with such funds being added automatically out of direct deposits of paychecks, for example, or sales of part or all of the portfolio can be effected, numerous times a day. If the investor wishes to add or sell specified stocks, for example for tax purposes where the investor wishes to obtain a taxable loss, the system informs the investor of the effects of the change on the portfolio's diversification and risk levels, etc. But (unless there is some restriction imposed by an employer for example) the investor has complete control and can determine to create a completely non-diversified portfolio comprising only one or a few stocks, if desired, by selecting to have the system acquire, or the portfolio consist exclusively after sales of, only those stocks. Additionally, any of the preferences specified by the investor can be adjusted and made effective numerous times a day. If the investor changes his preferences, the system will review the investor's current holdings and suggest changes to reflect the new preferences, including any changes in, or to maintain, desired risk/return levels. Similarly, as the actual experience of the securities in the portfolio changes (and obviously in the case of a company, for example, that is acquired and its securities are replaced with cash), the system may suggest changes even if the investor's preferences have not changed.

Detailed Description Text (32):

The web server 14 is also electronically connected to other investors and traders 15 for executing trades to be made outside of the computer-based system of the present invention through any of a variety of known standard interfaces, e.g., the Financial Information eXchange (FIX) protocol. Some or almost all of the program that performs the method of the present invention can be left resident on the investor's computer 11a-11e, with the investor accessing the Server 14 to obtain updated information and to provide orders for execution.

Detailed Description Text (41):

Screen 4 (25) also elicits information from the investor that is employed in creating a risk-return preference function for the investor. Such information includes volatility levels, risk, required rate of returns (based on the above asset allocation model), etc. The utilization of various parameters to establish that function is then employed to set initial defaults, which can be modified if desired by the investor in Screen 5 (26). Program flow then proceeds to screen 5 (26).

Detailed Description Text (45):

As further examples, a noted analyst may state that her ideal portfolio would be the following fifty stocks in the following proportions, or a magazine may give its picks for the "ideal" portfolio, or a charitable-organization may provide a list of the corporations that have done the most for the charity, and individual donors to the charity may wish to build a portfolio of corporate contributors, or a union may wish to provide a list of companies it works with who it believes are good companies and may recommend that members acquire shares in those companies. In any of these types of cases, Screen 5 would make available the list of companies and the suggested allocations (or if no allocation is provided by the entity creating the list, then in accordance with appropriate diversification requirements, risk and other preferences of the investor, as provided previously). Furthermore, the computer-based system of the present invention automatically employs known

collaborative filtering techniques, such as those utilized through a Firefly Network system (www.firefly.net) because the system already has the investor's preferences entered into the system. In this instance, the investor's preferences entered into the system are used to identify securities that may be of interest to the investor that have been specifically identified and transacted by others with similar preferences. Entire portfolios can be presented. For example, if an investor who enters preferences regarding certain types of stocks then separately determines to buy another specified stock, then if another investor enters similar preferences as the first investor, that second investor could be notified that an investor with similar preferences also specifically added for purchase this other security and the second investor may wish to consider adding it as well. In this manner, the system of the present invention can be used to facilitate the creation of diversified portfolios created by the equivalent of investment clubs.

Detailed Description Text (47):

In each case, and in each of these screens, the investor is presented with a default set of preferences that the system recommends based on the investor's stated general goals and the investor information entered in earlier screens. For example, if an investor specified that he wished very little risk in his portfolio, and high dividend payout, but then selected capitalization exclusively under \$25 million, the system alerts the investor to the fact that there are insufficient companies that satisfy these preferences to create a reasonably diversified portfolio. The system then recommends that the investor permit the system to select from any size capitalization or suggest the investor change some of the other parameters that are constraining the choices, such as the dividend payout.

Detailed Description Text (48):

For those factors or parameters for which the investor wishes not to make a selection, the system uses defaults to create a portfolio that satisfies the other criteria, if any, that are selected by the investor. If no factors or parameters are selected at all, then the system creates a default portfolio based on the asset allocation, risk-return preference and other information, such as age and income, that the investor has provided the system. The number of different portfolios that the system can create is extremely large (almost limitless and in any event far in excess of the number of potential investors), and there is no expectation that any two investors would have identical portfolios (although they could if they so requested (such as members of a family that wish to have separate accounts but identical portfolios, or an individual that wishes to have multiple accounts (such as an IRA and a non-IRA account) with identical portfolios), or if two persons happened to make identical selections on all parameters, or used defaults in all cases with identical age and income ranges, etc.). Essentially, the system engages in an interactive process with the investor via the main server and the investor program executing on the investor's computer. The investor's program prompts the investor for the information needed by the main server to determine the portfolio or to create the asset allocation model. However, some of these selections made by the investor can affect the asset allocation model, such as limiting the volatility, which can cause the program to indicate that the investor must increase the allocation of resources to equities to achieve the desired investment goals. Consequently, the process can be viewed as either a two stage process, the first stage of which determines the asset allocation model, and the second stage of which enables the investor to select the desired securities in his portfolio, or as a single interactive process during which the investor selects both the general categories of investment vehicles and states his investment goals, which are often interrelated. If there are limits imposed (by a plan sponsor or employer perhaps, or by the investor itself for its own account or for another account over which the investor has authority (which could also be a corporate account or some other account where parameters are set by one entity and the actual trading or execution selection is made by another)), the limits would be made apparent in these screens and the investor directed to make choices that comply with the limits.

Detailed Description Text (50):

Screen 7 (28) provides the investor with the selected portfolio (see FIG. 5 for an example). The portfolio can be presented in a number of different formats for the investor. Those formats include: a list of the actual stocks to be included, the relative percentages (see caveat below) each such stock comprises (by expected dollar allocation) in the portfolio and the risk, relative to the average, of each such stock (see below); by type of security selected (such as the percentage that are in one range of market capitalization as opposed to another) and various other factors that reflect generally the factors that can be selected by the investor; and, by risk and performance of the portfolio as a whole.

Detailed Description Text (51):

Both risk and performance are based on the historical activity of the stocks and are presented graphically, with portfolios that are riskier than specified averages shown as such by volatility charts, and by words such as "this portfolio, on a historical basis, would lose or gain 10% of its value relative to the [specified] index 5 out of 100 trading days." The portfolio could also be displayed as expected values in dollar amounts based on historical returns and volatilities, with probabilities and sensitivity analyses being performed. The output could be a graph showing the expected distribution of the values (much like a bell shaped curve showing the average expected value and the tails showing the high and low expected values at specified levels of likelihood (or some particular numbers such as "this portfolio would be expected to double in value over ten years but there is also a five percent chance that it will be worth only 60% or less of its current value in ten years." When the portfolio is displayed as a list of securities to be included in the portfolio, the risk for each such security would be shown graphically, such as by a color or a bar next to the stock. As an example, the bar would be shaded one color (such as yellow) for stocks riskier than the average and another color (such as blue) for those less risky than the average (see FIG. 13 for an example), or the bars would extend to the right of each listed stock for those stocks that are less risky and to the left for those that are more risky. The longer the bar, the further it departs from the average. An investor wishing then to increase the level of riskiness in the portfolio can either return to the screen where risk levels are set with the result that the portfolio will be readjusted to be riskier, or select those stocks that contribute to higher levels of risk and increase the allocation to such stock, or add to the level of risk by specifying that margin should be used (in other words, that the investor will request a loan from the intermediary running the system or another source to acquire securities on a leveraged basis), thereby increasing the risk level of the portfolio. In addition, if the investor wished to make the portfolio similar in risk levels to some other portfolio, such as a fund that the investor was accustomed to investing in, or wished to make the portfolio more or less risky than that fund or some other portfolio, the investor would be given the opportunity to specify the precise risk level desired by inputting the desired risk level into the system, either by changing the position of the pointer on a dial, or another device described herein for specifying the overall risk level of the portfolio.

Detailed Description Text (53):

The investor is also provided the opportunity to specify whether some or all stocks should not be purchased if the price moves materially beyond the current price at the time of execution (if the system operator is not executing the order immediately and assuming the price movement risk as a pre-aggregator). Program flow then proceeds to screen 8 (29).

Detailed Description Text (54):

Screen 8 (29) provides the investor with final confirmation of the portfolio, and solicits from the investor the amount to be invested in this portfolio. The investor enters that information as a dollar amount. Because the precise prices at which the specific stocks are to be purchased will not be known until the time of purchase (if the system operator is not executing the order immediately and

assuming the price movement risk as a pre-aggregator), the number of shares of any particular stock to be allocated to a particular portfolio needs to be somewhat approximate to accommodate price swings prior to the execution of the trade. With that caveat, the portfolio allocations and the specific securities to be purchased are then stored either in the storage facility on the investor's computer and when transferred to the main server stored there as well, or stored just in one location. The precise number of shares to be purchased and allocated to this investor are determined at the next transaction window based on the then current prices for the stocks-as they are purchased for the account of that investor. The portfolio is then updated and stored by the system for access the next time the investor logs onto the system.

Detailed Description Text (71):

In this example, the number of trades needed to execute portfolio creations or adjustments is reduced from 9 to 2 with netting and from 9 to 6 without netting. As a further example, assume the invention was employed on a system that was being used by 10,000 investors creating and maintaining their portfolios from a list of 750 stocks. Assume further, that each investor is engaging in just five transactions relating to his portfolio during a given period. The number of transactions that would normally have to be sent to an exchange or third party market maker or be executed by the broker as dealer would be 50,000. By contrast, employing the invention, the maximum number of trades the system would theoretically have to execute would be 1500 (two trades--a buy and a sell--in each stock) assuming no netting of buys against sells, and 750 (one trade in each stock) if there is netting of buys against sells, i.e., either a single buy or a single sell depending on whether the total number of shares being bought exceeded the total number of shares being sold or vice versa. In the first case, the computer-based system of the present invention saves the costs associated with 48,500 trades, and in the second case, the computer-based system of the present invention saves the costs associated with 49,250 trades--a ratio of over 30:1 in savings!

Detailed Description Text (75):

Screen A shows one form of a general presentation of the risk 55a and expected differential in return 56a of a chosen portfolio 57a of six stocks. The benefits of diversification can be obtained by using a number of securities in the portfolio, with the number usually being in excess of twenty. In actual operation then, the number of securities in the portfolio would generally be at least twenty or more since, as noted, part of the purpose of the invention is to allow the benefits of diversification to be provided to the investor. Consequently, unless the investor determines otherwise, the number of securities in a portfolio will usually be at least twenty and generally would be materially higher.

Detailed Description Text (76):

As the investor increases or decreases the relative percentage of the stocks (six shown in this example) in the portfolio there will be a corresponding adjustment in the risk 55a and return 56a for the portfolio with the pointers 51a, 52a either moving up or down. In this example, the strips 53a, 54a along which the pointers 51a, 52a, respectively, move would be color-coded (much like a litmus testing strip). The color-coding will be used in connection with the presentation of the individual stocks in the portfolio as shown in Screen B. The pointers 51a, 52a could be a dial, or any other device for showing one value relative to another, and could be used with or without the color-coding.

Detailed Description Text (77):

Screen B shows a detail of Screen A with the stocks specified and their relative contributions to the portfolio and their respective risks 55b and differential returns 56b. An investor will instantly be able to determine which stocks are contributing higher levels of risks and presumably higher levels of returns to the portfolio and, if desired, adjust them to modify the risk/return levels in the portfolio (but see below). Obviously, a number of combinations will not be

available as limited by the specific stocks selected. In that instance, the system generates a statement that the combination requested is not possible and suggests alternatives such as other securities (e.g., money market funds or preferred stocks or AAA-rated short-term notes, which in a real portfolio would be added to the mix in Screen A or B) that could lower overall risk and returns or leveraging (which would be shown as a bar increasing the risk of the portfolio) that could increase it, or different stocks with different characteristics, depending on what preferences the investor had earlier inputted into the system.

Detailed Description Text (78):

Alternatively, and importantly, the investor could adjust the pointers 51a, 52a in Screen A up or down (or the hand of a dial, or the color code on a litmus-type strip, etc.) and the system will recalculate the required mix of the portfolio's stocks. The investor may be required to adjust the overall mix of the securities in the portfolio in order to comply with limits established by a plan sponsor or employer, or the investor itself or by the investor on behalf of another over which the investor has authority (which could also be a corporate account or some other account where parameters are set by one entity and the actual trading or execution selection is made by another). This important dynamic interface is a major advantage of the system in that it allows investors to adjust their portfolios to desired risk--return characteristics by directly adjusting the risk and return pointers or dial or colors and having the system automatically determine what change in weighting of the securities comprising the portfolio is necessary to accommodate those desired characteristics. Thus, investors are afforded a simple click-of-a-mouse mechanism to adjust their entire portfolio to precisely the types of portfolio characteristics desired without having to know about the various interactions of securities with each other or the portfolio effects of changing one security or another or have any other knowledge! And as noted above, if the investor wished to make the portfolio similar, or greater or lesser, in risk levels to some other portfolio, the investor could specify the precise risk level desired by inputting the desired risk level into the system, through any of these means.

Detailed Description Text (79):

Screen B also shows the calculation of the risk (beta) 55b-55h and expected differential return levels 56b-56h for the stocks that are used to calculate the portfolio risk levels 53a and the expected differential returns 54a of the portfolio. It would also be made clear that a principal benefit of the computer-based system of the present invention and the concept of using a portfolio for investing instead of individual stocks is the notion that the riskiness in any one stock held in a portfolio may be different from the riskiness of that stock held by itself (thereby generating some of the benefits that stem from diversification, etc.). Consequently, investors will be cautioned to focus on portfolio risk/returns, not individual stock risk/return. Again, then, there is a great advantage to investors as described above from being able to adjust their whole portfolio characteristics just through moving a pointer (51a, 52a in Screen A up or down (or the hand of a dial, or the color code on a litmus-type strip, etc.)), as opposed to having to consider and understand the effects on the portfolio from modifying individual stock positions. Thus less than expert investors, for example, can have their portfolio adjusted automatically by having the system re-weight or add cash, or leverage, when the investor adjusts the pointers, dials or colors. The scales, etc. can all be adjusted to make the presentation easier to see for different portfolios.

Detailed Description Text (80):

As shown in screen B, Common stock in company A 57c has a risk relative to the S&P 500 of 0.9 (which is blue on the color coded litmus test example) 55c, it represents 5% of the total value of the portfolio, and its differential return with respect to the S&P 500 is negative 15% 56c, which is also depicted in blue. Each of the remaining stocks is represented in a similar manner. In this example, the stocks are listed in alphabetical order, however, they could be ordered in a

different manner depending on an investor preference selection. For example, the investor could adjust the ordering to depict the stocks in order of total value of the portfolio, from low to high risk or vice versa, etc.

Detailed Description Text (81):

In any of these instances, the securities that can be viewed as an integrated, single portfolio for the investor can be any securities, including funds or other investments, the investor inputs into the system. Consequently, if the investor has a variety of accounts that must be maintained as legally disparate and separate accounts, then the investor can still view each of them together as a single integrated account for purposes of analysis and trade execution by having the system include whatever accounts and the securities or other investments contained therein as a single account that the investor desires (likewise, the investor can exclude any securities or other investments he wishes from being included in an account for purposes of analysis or trade execution). In this manner, the investor is provided the benefit of being able to integrate easily all his holdings and understand and manage all his accounts even though they must be maintained in legally separate accounts. Therefore, for the first time, an investor that has securities in a 401(k), an IRA and a separate trading account, and who has securities for an account of his children, can view all the holdings as a single integrated whole and manage them to obtain the benefits of portfolio theory including to ensure proper levels of diversification, sector exposure, concentration levels, overall risk, etc. The investor would do this merely by noting the accounts, or the securities or other investments within accounts, to be grouped together for purposes of acting as a single portfolio. As noted, this aspect of the present invention could also be used for similar analyses regarding other securities for which risk--return information is available, such as and primarily, mutual funds.

Detailed Description Text (85):

If the investor has specified portfolio characteristics, the flow would proceed to the stock selection mechanism 157 to access information in a securities database 158 which comprises all manner of securities with their associated characteristics. If the investor has specified certain securities characteristics, they are inputted to a file of characteristics 156 which describes the various investment objectives of an individual. For example, an investor may wish to invest in long term and potentially high yield stocks. The portfolio characteristic generator 156 can then generate a series of rules to be used to select stocks. This rule based stock selection 157 then accesses information in the securities database 158. Once stocks are selected, they can be output 159 in a variety of ways. For example, the results can be displayed on an investor's screen, hard copy output can be provided to the investor, or an electronic file can be sent to the investor for storage and later access.

Detailed Description Text (87):

Referring to FIG. 16 the concept of affinity group investing is shown. The present invention first collects investor demographic information from each of a plurality of investors 161. That information is sent to, and aggregated by, a generalized demographic database 162 which resides within the overall investor database 163. As mentioned earlier, all of the information in this investor database is generalized so that the privacy of individual investors is maintained. The main purpose of the investor database 162 is to allow subsequent analysis of investor trends and behaviors to be made.

Detailed Description Text (88):

In a similar fashion to the collection of demographic information, individual investor security investments and portfolio characteristics are also collected 164. The specific securities invested in by and/or portfolio characteristics of a given investor are then sent to, and aggregated by, a generalized securities and portfolio characteristics data base 165. This database associates the investments

made by particular groups of investors.

Detailed Description Text (89):

When an investor desires to enter an affinity group or to see screens based on group or investor characteristics or do collaborative investing, the investor accesses, via a PC or from a server a series of affinity group selection criteria 166. Such criteria might be profession, annual family earnings, education level, geographic area, and other demographic characteristics. The criteria selected to create a particular affinity group, is then presented to the investor database 163. The affinity group characteristics are retrieved from the generalized demographic database 162 and associated with the particular portfolio or securities selected from the generalized securities/portfolio database 165. This information is then used to create (depending on what the investor requested) a securities and/or portfolio profile 167 of the particular affinity group. This securities/portfolio profile can then be output 168 to the investor. Alternatively, the securities profile 167 can be input to the securities and portfolio database 169 of the present invention so that performance output 170 can be presented to the investor showing how the securities invested in by the particular affinity group actually performed, and can also be presented to the system for execution or inclusion in the investor's portfolio 171. (In a similar manner, any other portfolio that the investor may generate through any of the other means described herein could also be run through the securities/portfolio database 169 and be outputted 170 to the investor showing how the portfolio so selected actually performed.)

Detailed Description Text (91):

In a similar fashion to the affinity investing in individual securities as part of or separate from a portfolio as described above the present invention allows for affinity investing with respect to mutual funds or other instruments as well. In this instance, the investor desires to know what mutual funds a particular group has invested in as a basis for making future investment judgments. Again not only can such affinity group mutual fund investing be determined from the investor database, but the performance of the affinity group's investment can also be determined.

Detailed Description Text (92):

Additionally, if a group of investors so desire, the investors can all provide information to the system so that other investors who they permit or who are in their same group can have access to the overall portfolio of the group as a whole--either for monitoring purposes or for analysis or for trade execution. In such instance the system would identify the group as a separate group within the general demographic database 163, and access to the portfolio and securities maintained by the group or the leaders of the group (2) would be permitted to members of the group.

Detailed Description Text (94):

It is important to note that while the capabilities of the present invention to trade in stock and mutual funds has been discussed, the system and method of the present invention is equally well suited to any tradeable security where economies of scale are of importance. Thus futures, options, bonds and other negotiable securities can equally be the subject of trading with the present invention.

Detailed Description Text (96):

FIG. 14 depicts an exemplary embodiment of the overall system according to the computer-based system of the present invention. Within the computer-based system of the present invention is a server 62, which executes a program B, which controls the operation of the entire system. While another program may execute on the investor's PC 63, program A, the investor's program can be completely performed by program B. Alternatively, these two programs A and B can work together like Pointcast, or other similar programs, which download data to an investor's terminal and display this data via a graphical investor interface based on "filter"

selections made by the investor. Thus, one possibility for program A is that it is merely a communication program that enables the investor to establish a link to the server 62, and set "filters," which determine what data is sent back and forth to the investor. In this case, the so-called filters consist of the stocks in the investor's portfolio and the investor's risk model, etc. Once established by the investor, the program B then performs all of the analysis and computation required to advise the investor as to the levels of risk and differential return inherent in the investor's portfolio relative to known standards. This enables tight configuration control on the investor software, which makes upgrading and security protection easier.

Detailed Description Text (105):

The computer-based system of the present invention is designed to provide a mechanism for a whole new financial investing system that currently does not exist. It allows investors, with expert assistance, to create, manage and modify a complex portfolio that reflects the investor's own preferences. It allows the investor to ensure that his portfolio is diversified and that it reflects the level of risk he wishes to assume. The computer-based system of the present invention also increases the investor's control over matters like what stocks he owns, the taxes he pays, and how his shares will be voted. And it permits him to purchase and sell whole portfolios and specific securities, and fractional interests in shares of securities--all for a low cost that is less than or competitive to trades of single securities through discount brokers or having an interest in mutual funds.

Detailed Description Text (110):

Investors are then provided information that solicits their preferences as to "risk" and "diversification." Their responses provide the invention the information it needs for its algorithms to work properly.

Detailed Description Text (111):

Based on this information, the invention suggests a general investment asset allocation that the investor can modify. Such asset allocation models are relatively standard and in current use. However, the standard models can be adjusted by the investor for use in the system to allow the investor to incur additional risk in order to achieve a higher return. The reason for permitting a higher risk-return level than normal is because the investor will be provided the opportunity through the invention to fine-tune--and monitor and maintain--the level of risk (based on a stock's historical volatility) selected by the investor for the investor's portfolio.

Detailed Description Text (112):

This fine tuning of portfolio risk will be far more than would ordinarily be the case, for example, for an investor attempting to select a mutual fund, because the investor utilizing the invention is able to ensure that the selected investments and their risk profile remain subject to the investor's control. In a mutual fund (other than passive or "non-managed" funds), the investor has no assurance as to what stocks, and what weighting of stocks, will be included in the fund in the future, or how much of the fund will be held in cash, and therefore no assurance that the fund will not modify its style and "risk" without the investor having advance knowledge of the change. Even in passive funds there is uncertainty as to how much of the fund is held in cash at any one time. Consequently, the mutual fund investor incurs the additional risk of the uncertainty as to a mutual fund's risk profile, thereby increasing the investor's level of risk without the investor obtaining any benefit.

Detailed Description Text (113):

Once the general asset allocation determinations and risk-return preferences are made, investors are asked, through simple screens, about any preferences they have regarding stocks, such as where securities are listed, capitalization, and business sector; various financial factors such as price/earnings ratio and growth trends,

and corporate governance factors such as whether the company sells specified products, or enjoys good labor relations, etc. (Determinations regarding subjective criteria, such as whether a company has "good" or "bad" governance factors, would generally come from third party sources.) An investor could then specify specific stocks-that must, or must not, be included in the portfolio. Consequently, the invention also acts as an ordinary broker--with a very low cost that would be expected to be materially less than even deep discount brokers--when immediate execution is not required or if the system operator is willing to pre-aggregate certain trades. If an investor seeks immediate execution for a selected trade, the invention will provide it, in the same manner as would any other electronic discount brokerage, for a fee that would be competitive with or better than that charged by the reputable discount brokers. After preferences are entered, the invention will create a diversified portfolio that expertly matches, to the extent possible, those preferences and the asset allocation determination--all automatically. If the portfolio is acceptable, the investor will enter the dollar amount to be invested and the securities will be purchased for the investor at the invention's next "transaction window". For the invention to work, costs must be kept low so that investors can purchase and modify whole portfolios of securities on a frequent basis. To accomplish this, under one embodiment of the invention, the invention aggregates the orders entered by the investors utilizing the invention. The orders are aggregated not for the purpose of attempting to match one investor's order against another investor's order, but to reduce the number of actual transactions required to be executed by the system. The number of aggregations will depend on the number of investors of the system, their usage and other factors, but it is currently contemplated that orders would be aggregated into those received when the market is closed, those received in the morning, and those received in the afternoon, with transactions effected at the market open, mid-day and at the market close. If demand warrants, and other factors make it permissible, transactions could also be effected at other times--such as in the evening or more frequently during the day, if there is a market from which prices can be derived or if there is a market maker willing to make a market at that time and if it appears that effecting a transaction at such time would be consistent with the interests of investors. Similarly, the system operator (a bank or a broker, for example), could "pre-aggregate" some orders by executing against itself as principal and then hold the orders until a transaction window or until a certain amount was reached, etc. in order to execute the pre-aggregated orders. For example, the operator could take ten orders from ten customers and pre-aggregate all of them by executing against itself as those orders are received, and then take the bulk order position that it now owns and execute that as another order. This strategy means that the operator has to take upon itself market risk, and also has certain other disadvantages including potentially having to treat each trade as a reportable order for reporting purposes and other requirements, but it may be viable for certain small orders. Shares can be bought in very, small odd lots (one or two shares), and even in fractions--purchases not possible on a cost-effective basis with ordinary brokerage. All investor actions can be automated, with specified amounts being added each week or month from direct deposits and with selected stocks sold or bought depending on whether they satisfy certain criteria. In subsequent sessions, the investor can modify his portfolio any way he wishes, including to reflect new preferences, add to it with additional dollars invested, or sell some or all of the securities in the portfolio. The investor can also have the portfolio analyzed in connection with other investments the investor may have, such as funds or other investments held in other accounts, to review and modify a whole integrated portfolio. The invention will track the tax "basis" and acquisition date in stock purchases, and which stocks have gains and which have losses: so an investor can choose to sell stocks to generate capital gains or losses (long or short term) and thereby manage tax effects. Moreover, because the investor actually owns the individual securities in the portfolio, instead of just an interest in a fund, the investor has the right to vote the underlying stocks (or delegate the voting in accordance with various instructions), and sell individual stocks when he wishes. The computer-based system of the present invention, therefore, provides complete

"hands on" portfolio management for the investor who wishes it--those who employ discount brokerage, and those who select mutual funds on their own and simple, automatic and expert management for an investor who wishes to be completely "taken care of".

Detailed Description Text (114):

The strengths and advantages of the invention include relative to mutual funds: the selection of individual securities to be included in a portfolio; management of and clearly superior tax effects; the ability to make specific modifications to the portfolio at least three times a day, including the ability to buy and sell securities as a block at the open, mid-day or close instead of just at the next close as is the case with mutual funds; the inclusion of world class securities or selection by sector, price/earnings ratio, governance policies, industry or other factors to suit investors' preferences at levels not available in mutual funds; the ability to exercise voting and other shareholder and corporate governance rights and decisions--such as whether to tender securities in a takeover; the ability to control selectively reinvestment of dividends; the ability to fine-tune risk-return preferences with complete control over what will be included in the portfolio and whether there will be a change in investment strategy; the ability to modify risk levels and portfolios with fewer potential costs or tax consequences; the ability to view multiple investments more easily as fully integrated portfolio and manage it as such; and the ability to manage costs better.

Detailed Description Text (115):

Those strengths and advantages relative to discount brokerages include: inexpensive and cost-effective manner of creating a diversified portfolio; ability to acquire small odd lots and fractional shares in multiple securities at reasonable costs; far less cost in purchasing and selling individual securities (assuming immediate execution is not required)--as compared even to the deepest discount brokers; ability to establish portfolio wide limitations and parameters such as required diversification of a portfolio and maximum risk levels; monitoring of portfolio based-tax effects; assistance in defining diversification and selection of stocks that satisfy diversification goals; assistance in defining other factors and investor preferences and selection of stocks that satisfy those other preferences and goals; and a likelihood of obtaining better execution than can be obtained through discount brokers due to matching of trades.

Detailed Description Text (116):

One exemplary embodiment of the present invention is for use in self-managed 401(k) accounts. By placing certain restrictions on the risk levels and a minimum number of assets/liabilities, the system can operate as a self-managed 401(k). For example, an employer may want to permit its employees to manage their own accounts, without incurring costs to the employer. So, once the plan is established, the individual accounts are billed a relatively low monthly fee (or small asset based fee) for enabling the user to be a self-managed account. But to protect the employer, the accounts would have certain restrictions placed on them so that an employee cannot invest all of his account into a single stock, for example, or create a portfolio with extremely high risk levels. The program can be set up to prevent execution of trades that violate these base parameters, and inform the user of the reason for non-execution.

Detailed Description Text (117):

Another exemplary embodiment of the present invention is for use by an existing brokerage company that permits its investors/customers to create a portfolio, as described above, and trade that portfolio via the brokerage company. Once the portfolios reach the central computer, they are broken down into their constituent trades. At this point, there are several possibilities. One, the trades can be aggregated, and netted against one another, leaving only a small number of shares to either be purchased or sold for each asset/liability. In this case, the brokerage company can undertake the risk that the stock will go up or down and

simply reallocate the ownership of the stocks within the company and then at the end of the day (or several times throughout the day) execute a trade to remove any risk. Two, the trades can be continuously executed as they arrive, thereby reducing any risk. In this case, the investors are still investing portfolio's, but the company is handling the underlying transactions to implement the desired portfolios. Third, the trades can simply be aggregated until reaching a certain size (either in dollars or numbers of share), at which point they are executed.

Detailed Description Text (120):

In addition, obtaining investor risk preferences and other information allows for appropriately focused private placement and other opportunities to be presented to investors.

Detailed Description Text (121):

Furthermore, the present invention makes possible the diversification for smaller investors that venture capitalists obtain in private placement investment by investing in multiple private placements. For example, most venture capitalists invest in multiple private placements, which are normally high risk/rate return investments. By investing in several, the venture capitalists are able to reduce their risk because the likelihood increases that one of the private placements will be successful, thereby offsetting losses in the others.

Detailed Description Text (122):

The present invention makes possible this same opportunity, but at a lower scale, to smaller investors. For example, by enabling private placements to be listed as any other stock, the system enables the investor to select that private placement for investment. By selecting several of these, the investor can spread the risk across many of these investments, thereby reducing the overall risk.

CLAIMS:

1. A program encoded on a computer readable medium for executing on a computer, enabling an individual or smaller investor to create, manage and trade a portfolio of market tradable assets or liabilities, directly owned by the investor in a market for each of the assets or liabilities and for interfacing with a system for managing a plurality of individual or smaller investors' portfolios via a first communication link over which the individual or smaller investor transmits to the system trading data regarding trades of at least one asset or liability directly owned by the investor and that the individual or smaller investor desires to make, said program comprising: a) a graphical investor interface prompting the individual or smaller investor for investor identification information, investor investment information, including an amount to be invested and a payment method, and investor preference data; b) an asset allocation modeling process creating a percentage allocation of assets for the individual or smaller investor based on the investor preference data, wherein the graphical investor interface displays via the computer display a plurality of assets or liabilities among which the individual or smaller investor can select to create an individual or smaller investor portfolio containing assets or liabilities directly owned by the investor and commensurate with the percentage allocation of assets; c) a risk and differential return calculation process continuously calculating a risk and a differential return of the entire individual or smaller investor portfolio relative to a standard industry measurement in response to changes in the portfolio made by the individual or smaller investor, and providing the relative risk and differential return to the graphical investor interface, which displays the relative risk and differential return to the individual or smaller investor, said risk and differential return process allocating the investment amount across the entire individual or smaller investor portfolio to identify trades of the assets or liabilities directly owned by the investor and contained in the portfolio that are required to achieve the desired risk and differential return, wherein said trades include single shares, odd lots and/or fractional shares of the assets or liabilities; d) a portfolio

editor process enabling the individual or smaller investor to modify the investor portfolio; e) a value at risk and sensitivity calculation process calculating a value at risk and a sensitivity return of the entire individual or smaller investor portfolio, and providing such value and analysis to the graphical investor interface, which displays the value and analysis to the individual or smaller investor; and f) a communication process communicating said investor identification information along with any trades of market tradable assets or liabilities to be executed in a market for each of the assets or liabilities to create or modify an individual or smaller investor's portfolio to ensure an individual or smaller investor's actual portfolio matches an individual or smaller investor's desired portfolio to the system, and matching the parameters of any limitations imposed on the portfolio, as said trading data via the first communication link, said trading data including an order to trade the portfolio of assets or liabilities, said communication process communicating trades including single shares, odd lots and/or fractional shares of said assets or liabilities to the system for managing a plurality of individual or smaller investor's portfolios for aggregation of said single shares, odd lots and/or fractional shares with other investors' trades.

2. The program according to claim 1, further comprising an automatic asset allocation adjustment process utilizing additional preference information provided by the individual or smaller investor regarding risk/return to re-adjust the asset allocation and to output a different asset allocation based on the additional preference information.

3. The program according to claim 1, wherein the graphical investor interface further comprises a routine that displays the relative risk and differential return as a color code.

5. The program according to claim 1, wherein the graphical investor interface further comprises a routine that displays the relative risk and differential return as a numerical indicator.

7. The program according to claim 1, wherein the graphical investor interface further comprises a routine that displays the relative risk and differential return as one selected from the group of: an arrow on a dial, an arrow on a horizontal scale, and an arrow on a vertical scale.

9. The program according to claim 1, wherein the graphical investor interface further comprises a routine that displays the relative risk and differential return as an arrow on a range of numerical values.

12. The program according to claim 1, wherein the portfolio editor process further comprises a routine that accesses a database located in the system storing a plurality of assets or liabilities, from which the individual or smaller investor can select to create and modify the portfolio of the individual or smaller investor.

15. The program according to claim 13, wherein the default portfolio process creates a portfolio that reflects similar risk/return characteristics to one selected from the group consisting of: the Dow Jones 30 index, the S&P 500 index and the Russell 2000 index.

29. The method according to claim 28, wherein the step of determining what assets or liabilities have been transacted further comprises the steps of: soliciting demographic information from a plurality of investors comprising characteristics of the plurality of investors; soliciting information relating to what assets or liabilities have been transacted by each of the plurality of investors; storing the demographic information in a searchable database of demographic information; storing the transacted information in the searchable database; and associating the stored transacted information with the stored demographic information.

31. The method according to claim 20, further comprising the step of displaying on a graphical investor interface relative risk and differential return as one selected from the group consisting of: a color code, a numerical indicator, an arrow on a dial, an arrow on a horizontal scale, and an arrow on a vertical scale.

32. The method according to claim 20, further comprising the step of displaying on a graphical investor interface relative risk and differential return as an arrow on a range of numerical values.

60. The method according to claim 58, further comprising modifying a display of risk and differential return of the investor portfolio in accordance with the actual trading pricing information for at least one of the assets or liabilities traded by the investor.

64. The method according to claim 63, further comprising soliciting demographic information from a plurality of other investors comprising characteristics of the plurality of other investors, said soliciting including: (i) soliciting information relating to what assets or liabilities have been traded by each of the plurality of other investors, (ii) storing the demographic information in a searchable database of demographic information, (iii) storing the traded assets or liabilities information in the searchable database; and (iv) associating the stored assets or liabilities information with the stored demographic information.

67. The method according to claim 20, wherein the employing comprises creating a portfolio that reflects similar risk/return characteristics to one selected from the group consisting of: the Dow Jones 30 index, the S&P 500 index and the Russell 2000 index.

72. The method according to claim 20, further comprising continuously calculating a risk and a differential return of the entire investor portfolio relative to a standard industry measurement in response to changes in the investor portfolio made by the investor.

73. The method according to claim 72, further comprising displaying the relative risk and differential return to the investor, allocating an investment amount across the entire investor portfolio to identify trades of the assets or liabilities to be owned or currently owned by the investor and included in the investor portfolio that are required to achieve the desired risk and differential return.

78. The method according to claim 77, wherein the screening comprises including or excluding assets or liabilities according to at least one of: a type of an asset or liability, a price of an asset or liability, a risk of an asset or liability, a geographic sector of an asset or liability, a product sector of an asset or liability, non-economic factors, social considerations, moral considerations, and political considerations.

82. The program according to claim 13, wherein the default portfolio process creates a portfolio that reflects similar risk/return characteristics to a stock index or a subset of a stock index.

85. The method according to claim 20, wherein the employing comprises creating a portfolio that reflects similar risk/return characteristics to a stock index or a subset of a stock index.

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L11: Entry 106 of 114

File: USPT

May 2, 2000

DOCUMENT-IDENTIFIER: US 6058379 A

TITLE: Real-time network exchange with seller specified exchange parameters and interactive seller participation

Brief Summary Text (5):

Ancient people invented money by placing fixed values on certain items such as shells, beads, stones, and even salt, with ingots being the most common form of money. Ingots were clumps of precious metal in no particular shape or size with their worth depending on their mineral content and weight. Their value was high because these metals were hard to find and difficult to mine. Ingots were not a panacea, though, and posed some problems for merchants even after being weighed. The greatest of these was determining true value because the content and purity of ingots varied. A partial solution for this dilemma was solved by stamping them with seals. Each seal displayed a description of the metal content, as well as a declaration of its weight. Even with the use of seals, unscrupulous traders would shave some of the metal off the ingot from the opposite side from the seal, thus depreciating the value. Despite these incipient problems associated with development, the world monetary system has evolved from ingots and ancient coinage to wire transfers, debit and credit cards and from primitive barter to currency exchanges, stock markets and intertwined global markets.

Brief Summary Text (20):

In order to accomplish these and other objects of the invention, an electronic network-based exchange system is provided that comprises a server system for hosting transaction operations, and client terminals connected to the server via a communications network. Various client/server architectures may be used. The exchange host is operated by an exchange operator. Sellers and buyers access the exchange to list items and bid on listed items via client terminals. The server side of the system preferably comprises at least one database, an internal proxy, an external proxy, an exchange processor and a listing. The client side can be any suitable client terminal. Separate client software for sellers and buyers may be provided, or both may be provided together.

Detailed Description Text (2):

FIG. 1 is a block diagram of an electronic network-based exchange system according to one embodiment of the present invention. Preferably, the general architecture used is a client/server architecture. Client/server architectures, per se, are generally known. As shown in FIG. 1, the server side comprises an exchange provider 100, which may further comprise at least one database 130, exchange processor 120, internal proxy 140, listing 160, and external proxy 150. Exchange provider 100 is connected to one or more clients 170 via network 110.

Detailed Description Text (3):

If desired, exchange provider 100 may include at least two portions. In a preferred embodiment, exchange provider 100 consists of two portions. The first portion comprises an internal portion 101, which may include database 130, exchange provider 120, and internal proxy 140. The second portion comprises external portion 103, which may include the listing 160 and external proxy 150. Internal portion 101 may be separated by security means 102 from external portion 103. Security means 102 may be a firewall or similar security providing device to prevent unauthorized

access to certain portions of the server side component.

Detailed Description Text (4):

Database 130 is a primary data storage mechanism and communicates with internal proxy 140. It is responsible for storing data and other information relating to system operation. Such information may include, system parameters, item records, account information, exchange accounting information and other information. Database 130 may be any conventional database, including multiple databases or distributed databases.

Detailed Description Text (6):

Internal proxy 140, which itself may be a server, may be used to sanitize, authenticate, filter and route communications (e.g., chat) and assist in the clearing process. Proxies, per se, are generally known. However, particular functions are performed by internal proxy 140. For example, internal proxy 140 communicates directly with database 130 and exchange processor 120, and may link the internal portion 101 to external proxy 150 or other components of the informal portion 103. More than one internal proxy 140 may be provided. Preferably, clients cannot directly access the internal proxy. Proxy 140 may be on a firewall.

Detailed Description Text (7):

Search Forms which may be a database, web server or other suitable mechanism provides information about items listed for exchange. Listing 160 is client accessible via external proxy 150 and network 110. One or more than one listing 160 may be provided per exchange.

User Searches

Detailed Description Text (10):

A preferred embodiment of the invention operates according to FIG. 2 It is assumed that the host has been configured. In step 200, the mode of operation of the exchange is specified. For example, it is specified how the exchange will work and what rules it will work under. Information that may be entered during this phase may include, inter alia, the start and stop time for the exchange, the categorization of the commodity (e.g., as either a good or a service), the aspects of the exchange that will be "open" and those that will be "closed," whether there will be public or private access to negotiations, and whether or not seller intervention will be allowed. Other rules and terms may be specified. This information is stored in the server and used to control a given exchange.

Detailed Description Text (11):

In step 205, commodity information is entered by the seller. The term commodity or item can include goods or services. This information may include identification of a new commodity or modification of an existing listing by an authorized person. Such information may include system required administrative information such as exchange rules (parameters for that item) seller identification, identification of the item, a major and/or minor classification, pricing information, and other terms. Other options available to a seller client include the ability to search/list items, modify/remove items, intervene in an exchange (e.g., terminate bidding or an item listed by the seller), electronic chat, and reviewing the history/status of bids. If the client selects viewing an item by identifier (e.g., an alpha-numeric), the client may be prompted for the identifier that a particular item is assigned. The client may have retained this number from a previous session, or may have received the number via accessing the listing service. If the client enters a valid identifier, the buyer may be shown the item, information about the item, or both.

Detailed Description Text (14):

The client may have the capability of browsing through the database using standard navigational tools. These options allow the client to quickly advance and review through the database. Items may be displayed in various views and in various orders. Once a desired items is identified, the buyer may obtain additional

information about the listed item. For example, the client may be provided with a chat option. Chat enables electronic communication via the network and may provide the client with a real-time communication link with other buyers, the seller or the exchange host. Further, if the rules of the exchange provide, the chat may be either public (i.e., everyone viewing that particular item will be able to see the chat such as in a chat room) or it may be private (i.e., no one except the involved parties can see the chat). This option may be one of the exchange parameters.

Detailed Description Text (16):

The potential purchaser may make a bid on an item that is currently being viewed and the information is processed in step 220. Once bid is selected, the client may be provided with the current highest bid for the item, and a window entering the required information for making a bid. In order to be accepted, the bid must meet certain criteria. For example, the bid must be higher than the current highest bid. The system may have rules in place that allow only predetermined increments (e.g., \$0.50, \$1, \$10, etc.) depending on the particular estimated cost of the item. Same as all, rules can be enforced on the client side and others can be enforced at the external proxy or internal proxy. This enforcement may also include the initial filtering of information. For example, if a bid placed is not higher than the current highest bid, the client may not transmit the bid. Alternatively, the non-qualifying bid may be dropped at the external proxy. Thus, unnecessary communications to the server are avoided.

Detailed Description Text (23):

Database 130 may have the ability to control the process of internal clearing. The present invention's implementation of clearing is based on a simple process for modifying at least two items. Referring to FIG. 3, the database can ensure the integrity of a trade by using the following process. First, in step 300, the system obtains the exclusive right to modify lock on data record #1 and on data record #2. This ensures that no process other than the internal clearing process can access the two data records. Next, in step 305, the system modifies the relevant data in each record. This may entail exchanging the information between the two locked records. In step 310, the system releases the exclusive right to modify lock on data record #1 and data record #2. The chronological order of the processes within a step is not significant, but each process of a step must be complete before moving to the next step and the steps must be completed in proper order.

Detailed Description Text (27):

Referring to FIG. 5, an illustration of the bidding process according to one embodiment of the invention is given. First, in step 500, the client bids on the item. In step 505, the system checks to see if the bidder is an authorized bidder. This may be based on the exchange rules set earlier by the seller. If the bidder is not an authorized bidder, an error message 590 is returned to the client. If the bidder is authorized, the process continues.

Detailed Description Text (28):

In step 510, the bid is checked to determine if it meets the rules, e.g., if it is greater than the current highest bid plus a predetermined increment. There may be other rules for determining whether the bid is valid. In one embodiment, the increment may be solely based on the bid on the item. For example, for items with bids of less than \$100, bids may only be made in \$1 increments; for items over \$100, bids may only be made in \$5 increments. In another embodiment, the bid increment may be determined based on the seller's estimated value of the item. In yet another embodiment, the increment may be set by the seller regardless of the bid or value of the item. If the bid is not greater than the highest bid plus a predetermined increment, an error message is returned to the client.

Detailed Description Text (39):

An example of this is using a web page on the World Wide Web to display information about a lot for exchange. The external proxy 150 can then extract appropriate

information from the remote web page and pass this to listing service 140 which in turn will pass information to database 130 and exchange 120 as needed. The information that is required to be extracted is information that is sufficient to allow for an exchange to take place. This information is then embedded using the invention's standard protocol so that it can be extracted. Therefore, it would be possible to use the Hyper Text Markup Language (HTML) comment tokens to wrap the invention's required information.

Detailed Description Text (40):

Referring to FIG. 6, internal proxy 140 and exchange processor 120 are provided with additional processing. Box A represents the additional processing that applies to internal proxy 140. These processes may include a clearing processor, such as a clearing bank, electronic data interchange (EDI). Box B represents the additional processing that applies to exchange processor 120. These processes may include a partial matching processor, barter matching processor or a pooling processor. One or more of the internal or external proxy can be used for, among other things, verification of authenticity of bids, validity of bids (based on rules), filtering of bids for price, status/time, item identification and required information. Preferably, the internal proxy handles more advanced functions, including authorization, identification and final verifications. A single proxy may be used if desired. Two proxies permit load balancing. Processing may include routing of data and/or filtering, among other things.

Detailed Description Text (50):

An alternate embodiment of this invention is a paperless, brokerless real-time concurrent point and click trading of Securities and Exchange Commission (SEC) listed stocks where individuals acting as an individual, broker, or broker/dealer may buy or sell registered shares of stock without using a brokerage firm as an intermediary. Brokerless refers to the fact that participants are trading directly with other participants without brokerage firm or other third party assistance. Real-time means both the ability to offer shares of stock for sale or to purchase shares, and the results of bids on these offers is processed nearly instantaneously and thereby known almost immediately by all exchange participants. The system will consist of real-time price negotiation between buyer and seller with a price matching mechanism when an offer to buy or sell is first entered. Trading is concurrent and interactive for both buyer and seller. Both buyer and seller will use the bidding mechanism to raise or lower bids and offers. The participants may choose any listed item offering and place a bid if they wish to buy, or change aspects of their offering if they have offered to sell. This will allow electronic price negotiation between buyers and sellers, simulating the trading floors of the real-world exchanges. When an offer to buy or sell stock is first entered, a check is made by the system to see if there is a matching offer on the opposite side of the trade. This match will be for the same stock at the same price in tradable quantities. A similar check is made if an existing bid or offer on any shares of stock changes. If the system locates a match, a trade is consummated. The exchange system will include an extensive database for customer and trade information. The system will maintain and provide a record of all trades concerning the time of day, the parties involved, the price and number of shares traded, and any other information that is required such as required by a government regulatory agency such as the Securities and Exchange Commission (SEC). A bid history will be available for any stock traded that will include the most recent offer and bid price, the price and volume of the last trade, and the previous day (or week) history. The system will provide real-time trade information on a per-trade basis.

Detailed Description Text (52):

Only members of this trading floor will be allowed to trade. Registration is required to become a member of the trade floor, and members are assigned an account number which are kept in the trading forum's database. To commence trading, members must have sufficient funds in their account to pay for the stock purchase. The system will preclude any member from trading more stock or money than is in their

account.

Detailed Description Text (53):

The "entertainment" refers to the excitement created or enthusiasm generated by the media over the anticipated outcome of a real-world event. This event must have multiple entrants but only one clearly-defined winner after a period of time. Small events may occur during this time duration that may help define the eventual winner. These small events will stimulate the trading of the entrant's stock. Depending on the trader's perceived value of how an entrant is fairing in relation to other entrants, during the trade period, will determine the value of any entrant's stock. An example of these events may include individual team games leading to a championship, political primaries leading to an election, or critic's review of Oscar-bound movies.

Detailed Description Text (55):

stock from the governing body during the time period may also be issued. The proceeds of these sales will go into a dividend depository that will be paid to the stock shareholders of the winning entrant, entrants, or combinations set by the specific rules for a particular event. This dividend will be paid at the end of the time period.

Detailed Description Text (57):

When the winner of the real-world event is determined, the dividend is distributed according to the rules for this particular event. If the real-world event is reoccurring, the stock holders may be issued stock options that allow them to purchase the same amount of stock at the next issue at par value.

Detailed Description Text (68):

If desired, artificial intelligence capability can be added to the buyer client to enhance its capabilities. For example, the buyer may use software agents to automatically search for items to bid on, may monitor bid status and/or closing items to automatically bid on items, without buyer intervention (subject to preset parameters by the buyer). Other functions can be added such as agent behaviors, single or multiple clients working together to address the market, and allow for the use of different sources of data such as on-line news tickers, information brokers and knowledge modeling databases. If desired, host-to host communication can be permitted. Multiple item lots may also be permitted.

Detailed Description Text (69):

In a preferred embodiment, a virtual online bank (VOB) may be provided. The VOB may be used to provide convenience to the traders and credibility to the exchange. Margin services may be provided by the VOB to a client based on a predetermined criteria. This predetermined criteria may include the results of a credit check, past trading experience, etc. A client may be provided the option of visiting the VOB at any time during the access to the exchange.

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File: USPT

May 2, 2000

US-PAT-NO: 6058379

DOCUMENT-IDENTIFIER: US 6058379 A

TITLE: Real-time network exchange with seller specified exchange parameters and interactive seller participation

DATE-ISSUED: May 2, 2000

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APPL-NO: 08/ 891633 [\[PALM\]](#)

DATE FILED: July 11, 1997

INT-CL: [07] [G06 F 17/60](#)

US-CL-ISSUED: 705/37

US-CL-CURRENT: [705/37](#)

FIELD-OF-SEARCH: 705/37, 705/39, 395/200.59

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

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	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/>	3573747	April 1971	Adams et al.	
<input type="checkbox"/>	3581072	May 1971	Nymeyer	
<input type="checkbox"/>	4412287	October 1983	Braddock, III	
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<input type="checkbox"/>	4789928	December 1988	Fujisaki	
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<input type="checkbox"/>	<u>4845636</u>	July 1989	Walker	
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<input type="checkbox"/>	<u>4903201</u>	February 1990	Wagner	
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<input type="checkbox"/>	<u>5032989</u>	July 1991	Tornetta	
<input type="checkbox"/>	<u>5077665</u>	December 1991	Silverman et al.	
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ART-UNIT: 275

PRIMARY-EXAMINER: MacDonald; Allen R.

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ATTY-AGENT-FIRM: Baker Botts L.L.P.

ABSTRACT:

A method for networked exchange comprises 8 steps. Those steps are (1) specifying a mode of operations for an exchange; (2) identifying a commodity for the exchange; (3) listing information about the commodity; (4) accessing of the listing by a potential purchaser; (5) accessing the network-based exchange by the potential purchaser; (6) processing information generated by the potential purchaser, the information comprising a negotiation; (7) concluding the negotiation; and, (8) clearing the concluded negotiation.

27 Claims, 8 Drawing figures

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<u>L15</u>	rules near database	2436	<u>L15</u>
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L1 705.clas.

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2065 L4
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26803 L2
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END OF SEARCH HISTORY